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STAFF RECOMMENDATION

ON CONSISTENCY DETERMINATION

Consistency Determination No.	**CD-4-00**
Staff:	MPD-SF
File Date:	1/12/2000
45th Day:	2/26/2000
60th Day:	Extended
Commission Meeting:	4/11/2000

FEDERAL AGENCY: **U.S. Navy**

PROJECT LOCATION: Surface Warfare Engineering Facility (SWEF), Naval Construction Battalion Center (NCBC), Port Hueneme, Ventura County (Exhibits 1-5)

PROJECT DESCRIPTION: Establishment of Virtual Test Capability (VTC)

SUBSTANTIVE FILE DOCUMENTS: See page 20.

EXECUTIVE SUMMARY

On September 14, 1999, the Commission objected to the Navy's consistency determination for the development of a Virtual Test Capability at the Surface Warfare Engineering Facility (SWEF), which is part of the Naval Construction Battalion Center (NCBC) in Port Hueneme. Because the Commission and the Navy had entered into informal mediation matter with the Office of Ocean and Coastal Resource Management (OCRM),[1] and because the primary purpose of the mediation was to convene an independent panel of experts to advise the Commission as to the potential coastal zone effects from existing SWEF radar facilities, the Commission believed

[1] Pursuant to federal consistency regulations 15 CFR Part 930, § 930.36 and Subpart G, § 930.110 et seq.

it would be premature to concur with major modifications to the SWEF. Commission concerns included questioning whether the Navy's analyses and radar tests have provided an accurate "worst case" or cumulative impact scenario. At that time the Commission expressed the expectation that the ongoing mediation efforts the Navy agreed to join should provide the necessary issue analysis that had frustrated resolution of these matters.

The expert panel review results are now available and the Navy has resubmitted its consistency determination. OCRM has summarized the panel members' review as follows:

> General Summary - The panel members found that the operation of the SWEF, including its radiofrequency emissions, *in accordance with the Navy's described operational and safety guidelines*, do not, *generally*, pose impacts to any land or water use or natural resource of the coastal zone and do not represent a public health risk. Some of the panel members stated that there may be health or exposure risks to people on vessels transiting or anchoring in the harbor. Most of the panel members recommended steps the Navy can, or should, take to further ensure that the operation of the SWEF is safe, that the Navy's operational and safety guidelines are carefully adhered to and monitored and that radiofrequency measurements in the uncontrolled (off-base) environment are adequate to continue to assess the impact of the radiofrequency emissions. [Emphasis in original]

The panel recommendations are attached as Exhibit 7. The Navy's commitments in response are attached as Appendix A (pages 22-23) . With some changes, the Navy has responded positively to the recommendations. One example of a change is that rather than submit operating logs to a federal agency, annual monitoring reports would be submitted to the Commission. Another change is that, rather than have a "non-DOD RFR measurement expert participate fully in the survey and the writing of the final report submitted to the public," the Navy has agreed to expand on the surveys and their communication to the public, but not to the extent of designating a "non-DOD person" as part of the survey team. Also, the Navy has not agreed to perform a "public exposure assessment study," but rather has chosen to address this recommendation by improving the existing Radhaz surveys, including doubling the measurement points taken in public (uncontrolled) areas, "translating" the survey results into plain English, and appointing an information officer to answer any questions about the surveys. Nevertheless, the Navy's commitments comply with the spirit and intent of the panel recommendations.

Thus, the Navy has adequately responded to the panel members' recommendations and has included commitments that enable the finding that the proposed radar modifications will be operated in a manner consistent with the public access and recreation policies (Sections 30210-30213 and 30220), fishing, boating and shipping (Sections 30234, 30234.5, 30240, 30255, and 30701) and habitat (Sections 30230 and 30240) policies of the Coastal Act. These findings are made with the understanding: (1) that the Navy will continue to test all radar facilities; (2) that the Navy will submit test results to the Commission staff; (3) that the Navy will continue to coordinate radar modifications at the SWEF with the Commission staff, including, where

appropriate, submittal of future consistency or negative determinations for operational or equipment changes at the facility; and (4) that the baseline data sets used by the expert panel will be considered as the baseline for the Commission to rely on in reviewing future changes at the SWEF.

Finally, the Commission wishes to reiterate and underscore what it believes to be two key points raised in the expert panel review: (1) the recommendation for a "well-designed, comprehensive public exposure assessment study" by one panel member; and (2) the use of the more restrictive "FCC guideline" by two panel members. On the first issue, the Commission, *in the strongest possible terms*, urges the Navy to agree to conduct a public exposure assessment study along the lines of that recommended by the panel member, and to use its best efforts to include in the study a "non-DOD" measurement expert on the study and report-writing team. On the second issue, the Commission wishes to express its expectations for future Navy radar surveys. The Commission is therefore advising the Navy that, in keeping with the Navy's commitment to conduct more detailed surveys and to better communicate those results to the Commission, the Commission expects the Navy to measure and report not only any exceedances of the legally applicable "DOD standards," but also any exceedance (for non-federally owned, publicly accessible areas) of the "FCC guideline" cited by two of the members as an appropriate guideline for public areas.

STAFF SUMMARY AND RECOMMENDATION

I. Project Description. The Navy proposes to develop a facility called the Virtual Test Capability (VTC) at the Surface Warfare Engineering Facility (SWEF) Complex, located the on the southwest corner of the Naval Construction Battalion Center (NCBC), adjacent to La Janelle Park and Silver Strand Beach in Port Hueneme. The proposed action would combine the continuation of existing activities at SWEF with: (1) installation of new equipment; and (2) increased operations to develop the VTC.

The VTC would electronically connect Navy facility assets (e.g., laboratories and ranges) with Navy fleet assets (e.g., aircraft and ships). The network that would be established would allow engineers and technicians to integrate the use of Navy systems hardware (radar, directors, and launchers), software (computer programs), and communications devices (satellites and radios). The VTC would allow the SWEF to be interconnected with other military facilities throughout the United States in order to conduct tests that could not be accomplished with the resources of a single facility, and specifically to emulate the assets of a battle group or battle force. The network would allow the "real-time" transference of data between these facilities, thus providing realistic simulations of warfare situations. The SWEF would be the key node of operations for the network and would function essentially like a switching device, channeling information among the different facilities as needed to meet the requirements of a given test.

The VTC would provide the Navy with the capability to test equipment and warfare scenarios using a mix of real, prototype, and simulated equipment. Tests would be conducted in either areal environment (e.g., using Navy ships and aircraft on a test range), test environment (using laboratories), or a completely simulated environment, depending on the requirements of individual operations. Certain tests would use a combination of environments. This capability would allow the Navy to test new equipment without requiring the use of an expensive real test environment unless necessary. It also would allow the Navy to change the mix of equipment that is linked together to provide needed testing, training, or maintenance for configurations that otherwise would be very expensive and time consuming to accomplish using only real assets.

Key elements of the proposed action include:

(1) Additional components of the AEGIS SPY-1A would be installed, including a transmitter, waveguide and antenna. However, the system would be incapable of tracking targets and would not radiate out of the antenna or outside the building. Two additional radar systems are currently in development (the SPQ-9B Phased Array Radar and the Multi-Function Radar) and would be installed and operational in FY 2002 and FY 2004, respectively.

(2) A C4 I satellite transceiver (command, control, communications computer), new C4 I radios and telephones, a Cooperative Engagement Capability (CEC), and a microwave link for local communications capabilities.

(3) Both passive and active optical systems would be installed and would be used for targeting, tracking, and engaging systems to fire weapons. Active systems would use a laser for target designation (detecting and tracking targets) and to measure distance electronically. All lasers would be Class I, eye-safe lasers, comparable to those used by the police for speed checks. The Navy defines Class I lasers as “lasers which by inherent design normally cannot emit radiation levels in excess of the permissible exposure limits.”

(4) Existing launcher systems (used for simulating missile launches) would be used for new integration tests, loading training and special fault tests. Modified or improved launcher canisters also would be tested at the launcher site. Two new launchers, a Quad Pack launcher and a Slant Pack launcher, are under development and would be installed at the SWEF when available and/or required. (Note: no actual launches would occur at SWEF.)

(5) A replacement or upgrade of a fiber optic cable may be required to support the VTC network.

In addition to the new facilities, operations currently ongoing at SWEF will increase in three areas: testing, maintenance and training. The Navy’s submittal included the following table comparing existing and proposed systems and operations at the SWEF:

Table 1. Comparison of Proposed Project Elements to Current Operations

Element	*Current (FY 99)*	*Proposed Action*
	CAPABILITIES	
Radar Systems	12	3 new
Optical Systems	1	2 new
Communications Systems	6	5 new
Network Systems	2	1 new
Launcher Systems	5	2 new
	ACTIVITIES	
RF Radiation	218 hours per year	42 additional hours per year
Major Maintenance Operations	4 events per year	2 additional events per year
Aircraft Operations	10, 2-4 hours per event	10 additional, 2-4 hours per event
Boat Operations	10, 2-4 hours per events	10 additional, 2- 4 hours per event

Finally, additional information about the proposal can be found in the Navy's recently submitted Draft Environmental Assessment (EA) for the proposed VTC, as well as in the Navy's response to a Commission staff letter asking additional questions about the VTC (see Exhibits 11-12).

II. <u>SWEF/Background</u>. The primary function at the SWEF is to support the continued improvement of warfare, combat, and weapon systems in areas such as reliability, operational capabilities, maintenance, availability, safety, and performance. The SWEF has been in existence since the 1970s and currently consists of 14 buildings and one communications tower (structure 5217) (Exhibits 3-4). About 50 full time (and 25 part time) employees work at the complex. Most buildings serve as engineering laboratories, and Building 1386 is a classroom training facility. Radar/director systems are located on Buildings 5186 and 1384. Building 1384 is the largest and most recent addition to the SWEF complex (Main SWEF Building, Exhibit 3). Construction of Building 1384 began in 1983, equipment installation began in 1985, and the Navy assumed full control of the building in 1986. Today, Building 1384 is an essential element of PHD NSWC's mission and is sometimes referred to simply as the SWEF. It contains a variety of fully operational systems, including sensors and launchers. The site affords clear paths for the installed radar systems to the open ocean and allows line-of-sight flight paths to the building. Building 1384 was designed to simulate the shape of the front of the superstructure of the Navy's most modern cruisers and destroyers in order to replicate conditions experienced at sea, including the elevation at which the radar antennas are placed. It also replicates these ships' phased array capability. ("Phased array" refers to a type of radar antenna that moves electronically and contains no moving parts. Since the antenna does not physically move, it can change directions almost instantaneously and is capable of tracking multiple targets at the same time.)

The SWEF is currently equipped with a variety of combat and weapons systems, including radar, computer and communications systems, as well as laboratory spaces. The equipment and spaces are similar to those found aboard ships. SWEF is used to perform test and evaluation exercises as well as to train personnel to maintain and operate the systems. SWEF provides a cost-effective means of providing realistic, verifiable surface combat and defense systems data to the fleet. As an example of the critical nature of the work that the SWEF performs, virtually all of the combat systems software used on Navy ships is tested at SWEF prior to installation and operation aboard those ships.

III. <u>SWEF/History of Commission Review</u>. In September 1995 the Commission staff expressed concerns over the Navy's 1985 construction of the main SWEF building[2]. That facility was built after federal certification of the CCMP (which triggered the requirement for consistency determinations). Historic documentation available in September 1995 led the staff to conclude that the Navy had been aware prior to its construction that the SWEF facility would affect the coastal zone and would conflict with several policies of the Coastal Act. Because the Commission staff believed the SWEF facility should have undergone federal consistency review prior to its construction, the Commission staff requested that the Navy submit an after-the-fact consistency determination for the facility.

Rather than agree to submit such a consistency determination, the Navy agreed to: (1) submit a "baseline" document describing the SWEF facilities and operations; and (2) coordinate modifications to the facility with the Commission for possible federal consistency review. Modifications to the SWEF to date, prior to the subject proposal, were submitted in the form of negative determinations (ND-26-98[3], ND-52-98[4], and ND-10-99[5]). The Executive Director objected to the first two of these; the third is still pending (the Navy has extended the review period pending completion of the mediation efforts described below). The two objections, dated April 30, 1998, included statements informing the Navy of the Commission's position that consistency determinations would need to be submitted for these activities, and expressing frustration over project-by-project analysis in the absence of an adequate cumulative/baseline analysis establishing safe exposure levels for the overall SWEF radar systems. Concerns were also expressed over the need for definitions of safe separation distances in a manner that would allow a description of maximum or "worst case" emission levels, as well as over possible exposure to shipboard personnel transiting the harbor mouth.

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[2] These concerns were initially raised during the Commission's review of a Navy-submitted negative determination for the establishment of a Special Use Airspace (ND-115-94). The Commission staff originally concurred with the negative determination; however the Commission subsequently determined that changed circumstances led to the conclusion that the activity would affect the coastal zone, and that a consistency determination was therefore necessary. The Navy subsequently withdrew the matter from Commission consideration and did not implement the proposal.

[3] Four Radar Systems: (1) Fire Control System (FCS) MK 99; (2) AN/SPQ-9B Surface Search Radar; (3) AEGIS AN/SPY-1A Antenna Array; and (4) AN/SAY-1 Thermal Imaging Sensor System (TISS)

[4] MK 74 Radar System

[5] MK 78 Mod 1 Director

In response to these objections the Navy maintained its position that the activities described in the two negative determinations would not affect the coastal zone. Based on this continuing disagreement, the Commission and the Navy agreed to an informal mediation process through the Office of Ocean and Coastal Resource Management (OCRM)[6]. Through that process, described in detail in OCRM's report to the Commission (under separate cover – see Exhibit 7 for summary), the parties agreed that technical experts on radar should be consulted to advise the Commission and provide an independent evaluation as to whether the SWEF radar facilities pose a risk to coastal resources.

IV. Status of Local Coastal Program. The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act, and not the Local Coastal Program (LCP) of the affected area. If the LCP has been certified by the Commission and incorporated into the CCMP, it can provide guidance in applying Chapter 3 policies in light of local circumstances. If the LCP has not been incorporated into the CCMP, it cannot be used to guide the Commission's decision, but it can be used as background information. The Port Hueneme LCP and Port Hueneme Port Master Plan (PMP) have been incorporated into the CCMP.

V. Federal Agency's Consistency Determination. The Navy has determined the project consistent to the maximum extent practicable with the California Coastal Management Program.

VI. Mediation. Sections 930.36 and 930.43 of the federal consistency regulations provide for the availability of mediation in the event of a serious disagreement between a Federal agency and a State agency over either: (1) whether a proposed activity affects the coastal zone (Section 930.36) ; or (2) regarding the consistency of a proposed Federal activity affecting the coastal zone (Section 930.43). In either event, either party may request the Secretarial mediation services provided for in Subpart G, including Section 930.111, which provides:

> *The availability of mediation does not preclude use by the parties of alternative means for resolving their disagreement. In the event a serious disagreement arises, the parties are strongly encouraged to make every effort to resolve the disagreement informally. OCZM [i.e., OCRM] shall be available to assist the parties in these efforts.*

Procedurally, the mediation efforts involving the SWEF that the Navy and the Commission have been engaged in (which are being conducted pursuant to Sections 930.36 and 930.111), is the question of whether six specific radar modifications to the SWEF have the potential to adversely affect the coastal zone. The VTC was not among the modifications specifically reviewed by the expert panel. Nevertheless, the issues reviewed by the panel are inextricably linked to future modifications such as the VTC, which is the reason the Commission previously determined it premature to consider the VTC prior to receiving the expert panel's review.

[6] Pursuant to federal consistency regulations 15 CFR Part 930, § 930.36 and Subpart G, § 930.110 et seq.

VII. Staff Recommendation. The staff recommends that the Commission adopt the following motion:

MOTION: ***I move that the Commission agree with consistency determination CD-4-00 that the project described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the California Coastal Management Program (CCMP).***

STAFF RECOMMENDATION:

Staff recommends a **YES** vote on the motion. Passage of this motion will result in an agreement with the determination and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

RESOLUTION TO AGREE WITH CONSISTENCY DETERMINATION:

The Commission hereby **agrees** with the consistency determination by the Navy, on the grounds that the project described therein is fully consistent, and thus is consistent to the maximum extent practicable, with the enforceable policies of the CCMP.

VIII. Findings and Declarations:

The Commission finds and declares as follows:

A. Public Access and Recreation. Sections 30210-30212 of the Coastal Act provide for the maximization of public access and recreational opportunities, with certain exceptions for, among other things, military security needs and public safety. Section 30213 provides that "Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided." Section 30220 provides that: "Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses."

The public access and recreation issue raised by radar facilities and operations at the SWEF is whether they have the potential to adversely affect public access and recreation at Silver Strand Beach and La Janelle Park and adjacent jetty, which are located seaward of the facility (Exhibits 1 and 2) and which receive heavy public use for a variety of recreational activities. In addition, the radar operations have the potential to affect water-related activities in the harbor mouth and ocean seaward of the facility, including uses such as recreational boating and fishing, surfing, and swimming.

As it has maintained for its existing radar facilities, the Navy contends that the proposed radar facilities (and other operations involved in the VTC) would not pose any public health risks, and, as has occurred for the existing facilities, that the proposed new facilities would be tested and performed safely in accordance with Navy procedures[7]. The Navy states:

> *Under the proposed action, additional components of the AEGIS SPY-1A antenna would be installed. Two additional radar (the SPQ-9B Phased Array Radar and the Multi-Spec radar) would also be installed at the SWEF complex and used for surface/air tracking exercises. Like the existing antennas, they would be located on rooftops of existing buildings within the SWEF complex and would radiate at an angle that would not impact members of the public, ships, or recreational vessels. Detailed testing would be performed before and after these radar are installed and/or rendered operational in order to ensure that no public safety hazards would result from their use. If the studies indicated a potential hazard to personnel working within the SWEF complex or members of the public, then emitter system characteristics would be modified to ensure a safe operational environment.*
>
> *The ongoing use of these radar systems would be subject to the same intensive safety procedures that are currently in place, further ensuring that no impacts occur. PHD NSWC Instruction3120.1A, "Standard Operating Procedures for Radar Systems, High Power Illuminators, and Launching Systems at the Surface Warfare Engineering Facility Complex," provides requirements and specific guidance for the safe installation and operation of equipment and systems at the SWEF complex. The new radar systems would be subject to these procedures. Key points are as follows:*
>
> *(1) A Subject Matter Expert (SME) would document and establish standard operating procedures (SOP) and approved parameters for system installation, modification, change and/or deviations based on the following studies.*
>
> *(2) A preliminary RF/RADHAZ [Radio Frequency/Radiation Hazard] assessment would be required for the installation of the new radar system components that would render the systems operational. The purpose of the preliminary RADHAZ assessment would be to document and assess the potential risks of the new radar and identify operating parameters. The preliminary assessment would determine what the safe separation distances would be, and at what height above the ground the RADHAZ region would be located. Safe separation distances (RADHAZ zones) would be calculated using permissible exposure limits (PELs) for the controlled and uncontrolled environments per DOD Instruction 6055.11. (PELs are based upon the thermal effects of a field, that is, the actual heating of tissue due to the absorption of energy.) For search radar such as those*

[7] Note: Appendix D of the Navy's draft EA provides a detailed explanation of the human health effects in general of RF and EMF Fields, an explanation of the existing standards, and the specific characteristics and schematic diagrams of the SWEF radars. This appendix is attached as Exhibit 19.

proposed, calculations would include the rotational duty cycle of the radar. Fixed beam calculations without the rotational duty cycle also would be completed for these rotating systems, which would yield a worst-case RADHAZ distance. In the preliminary assessment, the following would be documented:

- *Location of emitter.*
- *Height above the ground or water.*
- *Type of RF emitter (i.e., search radar).*
- *Proposed radiate sectors (true coordinates).*
- *RF emission RADHAZ zones, heights and obstructions (primarily obstructions that may alter the RF transmission, such as other emitters to the side or behind the antenna or building blockage).*
- *Operating parameters, such as average power, estimated system losses, and PELs, that would be used to compute the safe separation distance. The calculation would be based on the lowest frequency of the radar since this would yield the worst-case limit.*
- *RADHAZ distance with height above the ground.*

The preliminary assessment of RF emissions would evaluate propagating beam patterns (i.e., mainlobe, sidelobes) and beam overlap area measurements for evaluating cumulative effects of RF emissions at ground level and adjacent areas near the SWEF complex. The assessment of RF emissions also would include adjacent water areas and the shipping lane (leading in and out of Port Hueneme Harbor), which is approximately 650 feet to 1,000 feet in front of the SWEF complex. The intent of this preliminary assessment is to ensure that during operation no significant levels of RF would be present in areas where the general public may be present. The assessment would show predicted RF levels where the general public may be present as being above, at or below the PELs. This assessment would be conducted with reference to an uncontrolled (public) environment.

(3) After the preliminary assessment and in accordance with OPNAVINST 5100.23, the Radiation Hazard (RADHAZ) survey would be conducted prior to operation. The surveys would establish operating parameters and assign frequencies to ensure that any impact from radio frequency (RF) emissions is confined to SWEF complex boundaries, or is focused in the air at heights (normally 60 feet) that would not affect the public. The RADHAZ surveys would confirm the systems' safe operation for personnel at SWEF (the "controlled environment") as well as the human and natural environment close by (the "uncontrolled environment").

The Navy describes its standards and frequency of testing as follows:

The surveys use RF safety standards that were originally developed by the Institute of Electrical and Electronic Engineers (IEEE) and later approved and adopted by the American National Standards Institute (ANSI) and the Department of Defense (DOD).

These standards are composed of two parts. The first set of safety standards is for controlled areas or zones. Controlled areas are locations where people, due to their employment, would expect to have the potential to be exposed to hazardous levels of RF. An example would be the area immediately around SWEF as stated above. Standards for these areas are based on a limit that is 10 times the exposure that might result in potential deleterious biological effects (0.4 watts per kilogram averaged over the whole body). In other words, the exposure that is allowed is 10 times less than that which would cause bodily harm.

The second set of safety standards relates to uncontrolled areas or zones (areas that are accessible to those other than trained personnel, including the general public). An example of the uncontrolled area is the jetty adjacent to the SWEF. The standards for these areas are based upon an exposure limit that is 50 times the level that might be required to produce potentially deleterious biological effects (0.08 watts per kilogram averaged over the whole body), or 50 times less than that which would cause bodily harm. Uncontrolled areas are further divided into two separate areas. The first is an area in which the RF levels are so low that there is no limit to the exposure allowed. The second area, referred to as the RF hazard zone or safe separation distance, is an area that has a defined permissible exposure limit (PEL).

Radiation hazard zones or safe separation distances are calculated based primarily on parameters associated with an individual radar system, including Permissible Exposure Limits (PELs), power, and antenna gain. RADHAZ calculations will vary depending on the absolute numbers used with the calculations and whether the environment is controlled or uncontrolled. In addition, most calculations do not include transmission line losses (loss of transmitter power on the way to the antenna), because they are often unknown and vary from installation to installation. In effect, this makes the calculation even more conservative.

The SWEF will operate all radar associated with the VTC within these parameters. Any further modifications needed to ensure public and personnel health and safety would be made at this time.

The new radar would be resurveyed at set intervals; spot checks are conducted every year. OPNAVINST 5100.23(E), January 1999, requires site certification, which includes a review of each radar every 3 to 5 years. This instruction would also require that any major modification to radar systems be subject to the above outlined installation and operation procedures.

Using these procedures and standards will ensure that the installation and operation of additional equipment necessary for the VTC would not create any hazard to beachgoers, boaters, jet skiers, fishermen or any other member of the public, and would therefore not restrict public access.

During the Commission's previous review of the VTC the BEACON Foundation contended (Exhibit 20) that the Navy's consistency determination and project description lacked sufficient clarity to enable an accurate impact analysis, and that a concurrence at that time would be premature, given: (1) the lack of completion of the mediation/expert panel review of the existing SWEF facilities; and (2) the fact that the Environmental Assessment for the proposed project had not yet been published for public review. The expert panel review is now complete, and the Environmental Assessment for the VTC has been submitted to the Commission staff.

As stated above, the Navy asserts that the existing facilities are operated safely and are regularly tested (and modified, if necessary, to assure their safety[8]). In its previous objection the Commission expressed concerns over whether the Navy's analyses and radar tests have provided an accurate "worst case" or cumulative impact scenario. These concerns were raised because, in past tests and analyses performed by the Navy: (1) not all existing radar equipment had been turned on; (2) some information was withheld due to its being considered "classified"; and (3) certain assumptions about calculations estimating effects on shipboard personnel appeared questionable. At that time the Commission also expressed the expectation that the ongoing mediation efforts the Navy agreed to join should provide the necessary issue analysis that had frustrated resolution of these matters. The Commission found:

> *The [VTC] project would expand the Navy's radar capabilities at the SWEF and electronically integrate the functions at the SWEF with other military missions around the country. This review comes at a time when the Commission and the Navy are currently involved in informal mediation efforts through the Office of Ocean and Coastal Resource Management (OCRM) to determine whether the existing SWEF radar facilities are affecting coastal zone resources. … The Commission lacks the necessary information at this time to find the activity consistent with the public access and recreation policies (Sections 30210-30213 and 30220), fishing, boating and shipping (Sections 30234, 30234.5, 30240, 30255, and 30701) and habitat (Sections 30230 and 30240) policies of the Coastal Act. … The Navy should re-submit this consistency determination at such time that the Commission will be able to take into consideration the panel deliberations prior to determining the project's consistency with the … CCMP.*

The expert panel review results are now available and the Navy has resubmitted its consistency determination. OCRM has summarized the panel members' review as follows:

> General Summary - The panel members found that the operation of the SWEF, including its radiofrequency emissions, *in accordance with the Navy's described operational and safety guidelines*, do not, generally, pose impacts to any land or water use or natural resource of the coastal zone and do not represent a public health risk. Some of the panel members stated that there may be health or exposure risks to people on vessels transiting or anchoring in the harbor. Most of the panel members

[8] See Exhibit 17 for a Navy chart showing past radar study recommendations and corrective actions taken.

> recommended steps the Navy can, or should, take to further ensure that the operation of the SWEF is safe, that the Navy's operational and safety guidelines are carefully adhered to and monitored and that radiofrequency measurements in the uncontrolled (off-base) environment are adequate to continue to assess the impact of the radiofrequency emissions. These recommendations are provided after the applicable panel member's summary. [Emphasis in original]

OCRM's more detailed summary of the expert panel members' evaluations and recommendations is attached as Exhibit 7. The recommendations include such measures as taking steps to: (1) avoid ships transiting the harbor with SWEF radars; (2) increase public confidence in Navy radar testing by (a) performing a "well designed public exposure assessment study" within the next six months; (b) designating a microwave safety officer; (c) agreeing to comply with any new updated safety guidelines promulgated by public agencies; and (d) submittal of operational logs to an independent federal agency (such as OCRM) on an annual basis; and (3) use a camera to monitor (and avoid affecting) bird roosting on the roof of the SWEF.

With several changes, the Navy has responded positively to these recommendations (see Appendix A on pp. 21-22). One example of a change is that rather than submit operating logs to a federal agency, annual monitoring reports would be submitted to the Commission. Another change is that, rather than have a "non-DOD RFR measurement expert participate fully in the survey and the writing of the final report submitted to the public" (as recommended by Joe Elder), the Navy has agreed to expand on the surveys and their communication to the public, but not to the extent of designating a "non-DOD person" as part of the survey team. The Navy has also not agreed to perform a "public exposure assessment study," but rather has chosen to address this recommendation by improving the existing Radhaz surveys, including doubling the measurement points taken in public (uncontrolled) areas, "translating" the survey results into plain English, and appointing an information officer to answer any questions about the surveys. Nevertheless, the Commission believes the Navy's commitments comply with the spirit and intent of the panel recommendations, and that the changes the Navy has made do not rise to the level of rendering the SWEF radars inconsistent with the Coastal Act.

The only radar modification proposed for near term installation at the SWEF as part of the VTC would consist of components of the AEGIS SPY-1A (including a transmitter, waveguide and antenna). As the Navy points out, this facility does not have the potential for adverse effects as it would not radiate out of the antenna or outside the building. However, the VTC would also consist of two additional radar systems within the next four years: the SPQ-9B Phased Array Radar and the Multi-Function Radar, proposed for installation and operation in 2002 and 2004, respectively. These facilities are still in the development stage and their technical parameters are currently unknown. The Navy has agreed to test these facilities prior to operation, and to submit the test results to the Commission for its review. Concerning future testing, the Navy states:

There are several different controls to ensure that our RF emission limits are not exceeded. These controls are related to installation design, the modifications to the equipment and restricted access to the facility. At the SWEF complex, whenever a system is being considered for installation, the Navy completes an installation design. The installation drawing includes the projected power level as well as the elevation and bearing restrictions. After the Navy installs the equipment, the Navy conducts an electromagnetic radiation hazard survey to verify that the power level restrictions have been properly implemented. The Navy uses the results of a pre-installation assessment to determine where the systems will be installed, and any limitations on the direction in which the systems will emit radio frequencies. Following radar system installation, the Navy conducts a site survey called a Hazards of Electromagnetic Radiation to Personnel (HERP) to test the radio frequency emission strength and further define acceptable and unacceptable directions to emit radio frequencies. Surveys concentrate on radio frequency emissions that are transmitted into the sky through the antenna located on the roof, as well as emissions inside the equipment spaces in the building.

Addressing a Commission concern over what future changes or test results would lead to further formal or informal Commission review, the Navy states:

The Navy will comply with the Coastal Zone Management Act by submitting negative determinations or consistency determinations as appropriate prior to the installation or modification of a radar system at the SWEF. The determinations will include a description of the equipment being installed or modified including any safety controls or modifications in place and any potential impact on the coastal zone. After the system is installed and the RF hazard report is completed, the Navy will provide the Commission with a copy of the RF hazard report verifying the actual conditions of operation. RF hazard reports can only be conducted after a new system is installed or a modification is installed. The Navy will assign a point of contact to be available to the Commission to address follow-up questions or provide other information.

To assist the Commission in reviewing additions to SWEF, the Navy will provide a description of the equipment and provide information explaining where the RF hazard zones exist in relation to the uncontrolled areas including the shipping channel. The Navy will also explain any safety controls or other modifications in place. In addition, the Navy will provide copies of all final RF hazard reports.

The Navy will also perform an analysis of any new radar to determine if the new radar may have a beam that could intersect with other radars within the shipping channel. If the radar has a beam that overlaps with other radars, the Navy will calculate the permissible exposure ratio and make adjustments as necessary. This analysis will become part of the installation design. The Navy will provide the results of this analysis to the Commission.

Finally, the Commission notes that concerns have been raised over potential public safety issues from proposed additional aircraft activities that would be associated with the VTC (the Navy estimates an 10 additional aircraft "events," with each event taking 2-4 hours). The Navy's project description notes:

> *These operations would continue to be conducted primarily on the Point Mugu Sea Range (Sea Range), which ends 3.5 nautical miles from shore [Exhibit 10]. Flight profiles would continue to be within Federal Aviation Administration (FAA) controlled airspace. Flight profiles, trajectories and flight altitudes would continue to comply with local regulatory restrictions.*

The Navy's draft EA further elaborates on the details of these operations. The draft EA states:

> *This is a minor increase, particularly when compared to over 100,000 commercial commuter flights in and out of the area each year*
>
> *The established safety procedures described in section 3.1 and Appendix C [of the EA][Exhibit 18] would be followed for the proposed operations, as well, thus reducing the potential for impacts. Routine flight profiles would be used that have been flown on the Sea Range for many years. As is currently the case, the proposed flight profiles would not be considered hazardous, and operations would meet all FAA requirements for flight safety. The profiles would be straightforward climbs, descents, and turns. No acrobatic maneuvers would be performed. The Navy would continue to contract with qualified companies with good safety records. No significant safety impacts would result from the small increase in the number of operations that would result from development of the VTC.*

In addition, the Commission staff has requested the FAA to comment on any concerns it might wish to communicate to the Commission over aircraft operations associated with the VTC. The FAA stated (Exhibit 14) that it did "… not have any comments … " and that the "… Navy's response to … [the Commission] in their letter of August 16, 1999, [Exhibit 12] is correct and accurate."

In conclusion, the Commission believes that the Navy has adequately responded to the panel members' recommendations and has included commitments that enable the Commission to find that the proposed radar modifications and additions, and other components of the VTC, will be operated in a manner consistent with the public access and recreation policies (Sections 30210-30213 and 30220) policies of the Coastal Act. These findings are made with the understanding that the Navy will continue to test all radar facilities, submit test results to the Commission staff, and continue to coordinate radar modifications at the SWEF with the Commission staff, including, where appropriate, submittal of future consistency or negative determinations for operational or equipment changes at the facility. For its analysis of future changes the Commission will rely for its baseline description and level of impacts on the

"Technical Parameters for SWEF emitters," dated February 18, 2000, which was the baseline relied upon by the expert panel, as well as the "to scale" map submitted by the Navy to the panel dated January 13, 2000 (Exhibits 8 & 9).

Finally, the Commission wishes to reiterate and underscore what it believes to be two key points raised in the expert panel review: (1) the recommendation for a "well-designed, comprehensive public exposure assessment study" by one panel member; and (2) the use of the more restrictive "FCC guideline" by two panel members. On the first issue, the Commission*, in the strongest possible terms*, urges the Navy to agree to conduct a public exposure assessment study along the lines of that recommended by the panel member, and to use its best efforts to include in the study a "non-DOD" measurement expert on the study and report-writing team. If any such study does not include such expert, the Navy should explain the reasons for the non-inclusion. On the second issue, the Commission wishes to express its expectations for future Navy radar surveys. The Commission is therefore advising the Navy that, in keeping with the Navy's commitment to conduct more detailed surveys and to better communicate those results to the Commission, the Commission expects the Navy to measure and report not only any exceedances of the legally applicable "DOD standards," but also any exceedance (for non-federally owned, publicly accessible areas) of the "FCC guideline" (currently 1 mW/ cm^2)[9] cited by two of the members as an appropriate guideline for public areas.

B. <u>Fishing, Boating and Shipping</u>. Several Coastal Act policies provide for the protection of boating and shipping activities. Sections 30234 and 30234.5 of the Coastal Act provide for protection of commercial and recreational fishing. Section 30220 provides that coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses. Section 30255 provides that coastal-dependent developments shall have priority over other developments on or near the shoreline. Section 30701 provides a legislative declaration that the ports of the State of California, which by definition include Port Hueneme, "constitute one of the state's primary economic and coastal resources and are an essential element of the national maritime industry."

[9] From 1.5 GHz - 15 GHz, the DOD/Navy limit increases as a function of frequency [frequency(in MHZ)/1500] from 1 mW/cm^2 at 1.5 GHz to 10 mW/cm^2 at 15 GHz and is 10 mW/cm^2 for frequencies up to 20 GHz. The FCC guideline is 1 mW/cm^2 for the entire range of 1.5 GHz to 20 GHz.

The Navy states concerning boating and shipping activities:

> *The use of surface craft would increase from 10 operations per year to 20, however most activity would take place on weekdays, which would minimize potential conflicts with recreational boaters. Standard navigational procedures would be used to avoid affecting other boats in the area, including visual observation.*
>
> *Commercial shipping traffic shares a portion of the Navy harbor and would continue to have unlimited access. No physical or safety issues would restrict port operations. The VTC would allow vessel traffic transiting the harbor, whether Navy ships or commercial cargo ships, to continue to do so without any restrictions. The Navy routinely coordinates with the Oxnard Harbor District to ensure no impacts to shipping occur.*
>
> *RF emissions would be unable to reach locations where commercial or recreational boats and their crews are present, as described below. Ships cannot get close enough to the SWEF to enter the RF hazard zones (safe separation distances) that are located in the area in front of the SWEF and extend toward the shipping channel that leads in and out of Port Hueneme Harbor. These hazard zones are elevated above the water level (40-95 feet) and point upwards.* [See schematic diagram, Exhibit 6] *The radar that have safe separation distances that extend into the shipping lane emit RF at high elevations only and do not affect even tall ships. Ships are prevented from getting close enough to SWEF to enter the hazard zone because of the draft and length of the ship and the shallow depth of the channel. Port pilots and tugboats are used to guide large ships in and out of the harbor, thus ensuring that they do not inadvertently enter the shallow portions of the channel.*
>
> *An increase of ten (10) 2-4 hour aircraft operations and ten (10) 2-4 hour boat operations associated with use of the VTC would occur over or on the Point Mugu Sea Range. These operations would not require that an area be cleared of recreational or any other users, nor would the operations in any way limit or restrict recreational activities. The VTC would have no impact on recreational uses of area waters, beaches, the Channel Islands, or associated recreational facilities within the Sea Range.*

The Navy also notes that:

> *The VTC is a coastal dependent development. The radar systems must be located on the beach, adjacent to the ocean, at an elevation not exceeding that of a typical combatant ship in order to emulate ship propagation characteristics of radio frequency (RF) emissions, and to allow systems testing in an operationally realistic environment. The location of the VTC at SWEF would accommodate it's [sic] coastal dependent uses, and would not result in significant impacts to coastal resources.*

In its previous objection the Commission expressed concerns over the Navy's assumptions in analyzing safe separation distances and the nearest proximity of ship traffic to the SWEF. The

Commission noted that these assumptions were integral to the issues being analyzed in the mediation efforts. Most members of the expert panel expressed concern that there could be potential impacts from ships traversing the channel, and recommended that the Navy take additional steps to avoid radar beams intersecting ships transiting the harbor. The nature of how this could be carried out varied from expert to expert: one felt no measures were necessary, two felt the standard outside the military base should be more restrictive than inside the base (i.e., use the FCC standard of 1 mW/cm^2 rather than the DOD standard, which can be up to 10 times higher, depending on the frequency of the radar (see footnote, p. 16)), and one felt a 2 mile clearance radius should be observed, with posting of Coast Guard Notice to Mariners warning ships not to remain in this zone.

The Navy's response to the panel member's recommendations (see Appendix A) contains commitments to avoid radar beams intersecting ships transiting the harbor, including use of a video camera, designating a "tall vessel exclusion zone," submitting annual monitoring reports including monitoring ship interactions, and designating a safety officer to assure compliance. The Commission believes that these Navy commitments adequately respond to the panel members' recommendations and enable the Commission to find that the proposed radar modifications and additions, and other components of the VTC, will be operated in a manner consistent with Sections 30220, 30234, 30234.5, and 30255, and 30701 of the Coastal Act. These findings are made with the understanding that the Navy will continue to test all radar facilities, submit test results to the Commission staff, and continue to coordinate radar modifications at the SWEF with the Commission staff, including, where appropriate, submittal of future consistency or negative determinations for operational or equipment changes at the facility (and with the same baseline considerations and expectations for future studies and surveys as described on page 16).

C. Marine Resources/Environmentally Sensitive Habitat. Section 30230 of the Coastal Act provides:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Section 30240 provides:

> *(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.*

> *(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.*

The Navy analyzed effects of its radar facilities and additional flight operations on sensitive wildlife species, including: the endangered California brown pelican, which resides in the area and breeds on Anacapa Island; the threatened western snowy plover, which breeds on Ormond Beach and at Point Mugu and may occasionally be found roosting along Silver Strand beach during non-breeding seasons; the endangered California least tern, which breeds at several beaches throughout the Port Hueneme area, including portions of Ormond Beach; and the endangered American peregrine falcon (currently proposed for removal from the endangered species list), which may visit McGrath State Beach at the mouth of the Santa Clara River, about 12 miles north of the SWEF.

The Navy's analysis included potential impacts to birds from noise, bird strikes by test aircraft, air emissions and exposure to radio frequency (RF) emissions. The Navy concluded that: (1) noise impacts from aircraft operations "would be intermittent, infrequent, and of short duration;" (2) that "There is no evidence that the noise levels or the presence of the aircraft would significantly affect the flight behavior;" (3) that "the low number of flights … is unlikely to cause disturbances that would adversely affect reproductive success"; (4) that "the proposed increase of 10 flights per year would have a negligible impact associated with bird strikes'; and (5) that "There is little scientific evidence to indicate that RF exposure has adverse impacts to birds." The Navy also coordinated its conclusions with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The Fish and Wildlife Service stated (Exhibit 15):

> *We concur that impacts to wildlife are not likely to increase significantly due to the increase in boat and aircraft operations You also provide data which indicate that RF emissions do not pose a threat to wildlife. This conclusion is based upon the distance birds are likely to be from the radar and if exposed, the assumption that duration of exposure will be short. … The Service does not have any more recent data that Eastwood's "Radar Ornithology" (1967) as cited in your letter. From discussions with … your staff, it appears that the literature search for papers describing the effects of RF emissions on wildlife has been exhausted. Consequently, the Service concurs with your findings, as the best scientific evidence indicates that there will be no effects on wildlife from the RF emissions, and the additional emissions only amount to approximately seven minutes per day.*

The National Marine Fisheries Service similarly concluded (Exhibit 16):

> *… that the proposed project is not likely to impact any species listed as endangered or threatened under the Endangered Species Act …[and] not likely to take any marine mammals protected under the Marine Mammal Protection Act ….*

During the Commission's previous review the BEACON Foundation (Exhibit 20) maintained: (1) that the Navy's consistency determination was too vague in its descriptions of the number of flights, aircraft types, and flight times, paths and locations to allow definitive conclusions to be drawn as to the project's impacts; (2) that several avian experts had submitted previous testimony expressing concerns over avian impacts from radar facilities at the SWEF; (3) that Navy air emission impacts conclusions were not substantiated by the data provided; (4) that the Navy was relying on outdated data (more than 30 years old) in concluding that RF emissions would be minimal. Based in part on these concerns the Commission sought to assure there would be wildlife specialist on the previously-discussed expert panel review. The wildlife expert recommended that the Navy install a camera on the roof to verify that birds were not roosting when transmitters are operation. The Navy has agreed to this recommendation (see Appendix A). No other wildlife concerns were expressed by this expert, who concluded that birds on the roof near the transmitters was the only major wildlife concern.

With the inclusion of the Navy's commitment to install a camera on the SWEF roof, monitor bird use, and cease operating until birds in front of any radar can be moved, the Commission concludes that the proposed radar modifications and additions, and other components of the VTC, will be operated in a manner consistent with the habitat and marine resource protection policies (Sections 30230 and 30240) of the Coastal Act. As stated in the previous sections of this report, this finding is made with the understanding that the Navy will continue to test all radar facilities, submit test results to the Commission staff, and continue to coordinate radar modifications at the SWEF with the Commission staff, including, where appropriate, submittal of future consistency or negative determinations for operational or equipment changes at the facility (and with the same baseline considerations and expectations for future studies and surveys as described on page 16).

IX. Substantive File Documents:

1. U.S. Navy Consistency Determination No. CD-75-95, Virtual Test Capability.

2. U.S. Navy Draft Environmental Assessment, Virtual Test Capability, August 1999.

3. Navy SWEF Radar Negative Determinations ND-26-98, ND-52-98, and ND-10-99.

4. Navy Special Use Airspace Negative Determination CD-115-94.

5. OCRM Memo to Technical Panel Members entitled: "Charge to the Technical Panel, Materials and Other Information on the Review of the Navy's Surface Warfare Engineering Facility at Port Hueneme, California," July 19, 1999 (including attachments).

6. "A Report to the California Coastal Commission and the United States Navy on the Coastal Effects of Radar Emissions from the Navy's Surface Warfare Engineering Facility at Port Hueneme, California," Office of Ocean and Coastal Resource Management, March 2000.

X. Exhibits (attached after Appendix A)

1-5. SWEF Complex and existing radars

6. Schematic of radar beam/ship in channel

7. Summary of expert panel members' evaluations from mediation

8. "To scale" map of radar azimuths

9. "Baseline" radar characteristics reviewed by expert panel

10. Military airspace boundaries

11. Commission staff questions to Navy on CD-75-99

12. Navy responses

13. Navy flow chart for internal decisions when installing or modifying radar

14. FAA letter

15. Fish and Wildlife Service letter

16. NMFS letter

17. Navy chart showing past radar study recommendations and corrective actions

18. Draft EA Appendix C – aircraft operations

19. Draft EA Appendix D – RF and EMF supplemental discussion

20. The BEACON Foundation letters on CD-75-99 and CD-4-00

APPENDIX A

Navy Response to Panel Recommendations

The Navy thanks the Panel for their diligent work in support of the informal mediation between the Navy and the CCC. We have reviewed all of the recommendations by the panel members and appreciate the many good ideas for improving the SWEF operations. The Navy shall commit to the following modifications to the operation of SWEF to improve operations of the SWEF and enhance public safety.

INSTALLATION OF VIDEO CAMERA & ELIMINATION OF RADAR EMISSIONS WHEN VESSELS ARE IN THE EXCLUSION ZONE

The Navy will install a video camera system on the roof of SWEF to enable system operators and engineers to monitor large/tall vessels, which require tug assistance, entering or exiting the harbor. An area extending from the harbor entrance buoy (approximately ½ mile from the entrance to the harbor) to the internal channel buoy will be designated a tall vessel exclusion zone (see Attachment (1)). When a vessel is in this 'tall vessel exclusion zone', Navy will not radiate any SWEF radar that has a RF hazard zone that extends beyond the internal Navy fence. All systems' Standard Operating Procedures will be modified to include the monitoring and vessel exclusion procedures. These procedures will be also be used for future radars that may be planned for installation at SWEF.

INSTALLATION OF A VIDEO CAMERA TO MONITOR BIRDS

The video system that will be installed will also be used to spot birds roosting in front of any radar. If a bird is roosting in front of a radar, the Navy will take appropriate action to remove it from the equipment before the system radiates. If a bird roosts during operations, radiation will be stopped until appropriate action is taken to remove the bird. All systems' Standard Operating Procedures will be modified to include the monitoring and bird removal procedures. These procedures will also be used for future radars that may be planned for installation at SWEF

IMPROVEMENTS TO THE RADHAZ SURVEYS

The Navy will, at a minimum, double the number RF measurement points along uncontrolled (off-base) areas in all future RADHAZ surveys. The Navy will specifically indicate the locations of maximum and minimum readings along the fence between the Navy and the public beach in all future RADHAZ surveys. During all future RADHAZ surveys, all SWEF radars capable of simultaneous operation will be energized and oriented (as allowed) toward the measurement points. The measurement equipment used during the test will be described in the report. The Navy will also provide a plain-English Executive Summary to assist the CCC and the public in understanding the technical report. The Navy will identify a POC to answer any questions that CCC may have regarding the survey.

APPOINTMENT OF A RF SAFETY OFFICER
The Navy will designate a RF Safety Officer to ensure continued compliance with required safety measures and regulations.

SUBMISSION OF ANNUAL REPORT TO CCC ON RADAR OPERATIONS
The RF Safety Officer will submit to the CCC an annual report no later than 31 January of each year to include: number of total hours the radars radiated out of the antennas, the number of time radiation was halted due to ships or roosting birds, the number of aircraft events flown off the Sea range, verification that all operational modifications agreed to as a result of this informal mediation are being followed, and verification that the facility continues to be operated in compliance with safety measures

NOTIFICATION & UPDATE ON OPERATIONAL MODIFICATIONS IN RESPONSE TO NEW STANDARDS

To assist the CCC in staying informed about the status of DoD's RF standards, the Navy will notify the CCC when changes are made to the DoD RF standard (DoD Instruction 6055-11). In accordance with the Office of Management and Budget (OMB) circular A119, federal agencies are required to use voluntary consensus standards instead of a government-unique standards unless they are inconsistent with applicable law or otherwise impractical. Therefore, DoD has historically used the RF standards developed by the American National Standard Institute (ANSI) and the Institute of Electrical and Electronic Engineers (IEEE). DoD is also required to comply with all federal regulations. The Navy would comply with any changes to the federal regulations governing RF emission promulgated by the Environmental Protection Agency. Navy will notify the CCC of any new or revised RF standards issued by ASNI/IEEE that DoD decides to use and any changes to applicable federal regulations. The Navy will also provide an explanation of how SWEF operations will be modified to comply with the new standard or regulation.